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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/736,678
Filing Date: December 13, 2000
Appellant(s): SUBRAMANIAN ET AL.

John R. Witcher, III
Registration No. 39,877
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed January 10, 2007 appealing from the Office action mailed April 10, 2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct, in that no amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

The examiner relied upon Denecheau et al. (U.S. Patent No. 6,611,874), Applicant's Admitted Prior Art (AAPA), Nessett et al. (U.S. Patent No. 6,421,734), and Chiu et al. (U.S. Patent No. 6,701,363).

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Double Patenting

1. Claims 1-50 rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-37 of U.S. Patent No. 6,970,943. Although the conflicting claims are not identical, they are not patentably distinct from each other because both applications are directed to methods and routing nodes for routing traffic requiring application level support and distributed processing among routing nodes capable of providing such application level support.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-47 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Denecheau et al., U.S. Patent No. 6,611,874, in view of Applicant's Admitted Prior Art (AAPA), further in view of Nessett et al. U.S. Patent No. 6,421,734.

Denecheau teaches the invention substantially as claimed including a method for statistically improving routing within an Internet, and more particularly for improving next hop selection between internetwork routers (see abstract).

As to claims 1, 19, 31, and 46, Denecheau teaches a method, a system, a computer readable medium containing software, and a routing element facilitating distribution processing among routing nodes capable of providing application level support during routing, comprising:

identifying processing resources required to provide application level support during routing for select traffic (col. 3, lines 43-58; Denecheau discloses next hop selection identifiers);

selecting at least one routing node capable of providing the processing resources required for the select traffic (col. 6, lines 66-67; col. 7, lines 1-20; Denecheau discloses a protocol processing the packet); and

routing the select traffic through the at least one routing node capable of providing the processing resources required to provide the support, wherein the at least

one routing node provides the support for the select traffic while routing the select traffic (col. 6, lines 66-67; col. 7, lines 1-20; Denecheau discloses a routing method that enables optimization of traffic).

Denecheau fails to teach the limitation further including application level support and the use of routing nodes including a control plane, a compute plane, and a forward plane.

However, AAPA teaches the use of a control plane, forward plane, and routing on an application level (pages 1-2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Denecheau in view of AAPA to use a control plane, forward plane, and routing on an application level. One would be motivated to do so because it makes use of sophisticated application-level knowledge.

Denecheau and AAPA fail to teach the limitation further including the use of routing nodes including a compute plane.

However, Nessett teaches techniques for avoiding the use of compression resources on data that has already been compressed (see abstract). Nessett teaches packets that are transmitted through an intermediate device which applies compression and/or encryption (col. 2, lines 14-38).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Denecheau and AAPA in view of Nessett to include a compute plane, with functions such as compression and encryption, as part of a routing node.

One would be motivated to do so because compressed data can help preserve bandwidth (col. 1, lines 37-39).

Regarding claims 2, 20, and 32, Denecheau teaches the method, system, and computer readable medium of claims 1, 19, and 31 wherein the at least one routing node is at least one of a plurality of routing nodes that can provide the application level support for the select traffic and the selecting step further comprises determining the at least one routing node from the plurality of routing nodes to provide the application level support in a manner to balance processing load among the plurality of routing nodes (col. 6, lines 66-67; col. 7, lines 1-20; Denecheau discloses balancing traffic over different routes).

Regarding claims 3, 21, and 33, Denecheau teaches the method, system, and computer readable medium of claims 1, 19, and 31 wherein the at least one routing node is at least one of a plurality of routing nodes that can provide the application level support for the select traffic and the selecting step further comprises determining the at least one routing node from the plurality of routing nodes based on available processing capacity of the at least one routing node to provide the application level support (col. 6, lines 50-67; Denecheau discloses avoiding overrunning the capacity of the receiving station).

Regarding claims 4, 22, and 34, Denecheau teaches the method, system, and computer readable medium of claims 1, 19, and 31 wherein the at least one routing node is at least one of a plurality of routing nodes that can provide the application level support for the select traffic and the selecting step further comprises determining the at least one routing node from the plurality of routing nodes based on available processing capacity of the plurality of routing nodes and the at least one routing node to provide the application level support (col. 6, lines 50-67).

Regarding claims 5, 23, and 35, Denecheau teaches the method, system, and computer readable medium of claims 1, 19, and 31 wherein the selecting step selects a plurality of routing nodes through which to route the select traffic to distribute the application level support for the select traffic and the routing step routes the select traffic to facilitate distribution of the application level support such that processing for the application level support is distributed among the plurality of routing nodes while routing the select traffic (col. 6, lines 66-67; col. 7, lines 1-20, 59-65; Denecheau discloses processing done at the routing nodes).

Regarding claims 6, 24, and 36, Denecheau teaches the method, system, and computer readable medium of claims 5, 23, and 35 wherein the selecting step further comprises selecting the plurality of routing nodes within one routing path such that all of the select traffic is routed through each of the plurality of routing nodes and processing

for the application level support is distributed among the plurality of routing nodes while routing the select traffic (col. 6, lines 66-67; col. 7, lines 1-20, 59-65).

Regarding claims 7, 25, and 37, Denecheau teaches the method, system, and computer readable medium of claims 5, 23, and 35 wherein the selecting step further comprises selecting the plurality of routing nodes within different routing paths such that a different portion of the select traffic is routed through each of the plurality of routing nodes and processing for the application level support is distributed among the plurality of routing nodes while routing the select traffic (col. 5, lines 22-51; col. 6, lines 66-67; col. 7, lines 1-20, 59-65; Denecheau discloses packets following a different path).

Regarding claims 8, 26, and 38, Denecheau teaches the method, system, and computer readable medium of claims 7, 25, and 37 wherein the selecting step further comprises selecting the plurality of routing nodes wherein at least two of the plurality of routing nodes are within one of the different routing paths such that processing for the application level support for the portion of the select traffic routed through the at least two of the plurality of routing nodes is distributed between the at least two of the plurality of routing nodes (col. 5, lines 22-51; col. 6, lines 66-67; col. 7, lines 1-20, 59-65).

Regarding claims 9, 27, and 39, Denecheau teaches the method, system, and computer readable medium of claims 1, 19, and 31 wherein the selecting step further comprises:

identifying possible routing paths between a source and a destination for the select traffic, each of the possible routing paths including the at least one routing node capable of providing the processing resources required to provide the application level support for the select traffic (col. 3, lines 43-58);

identifying a capacity of the at least one routing node in the possible routing paths to provide the processing resources (col. 6, lines 50-67); and

determining at least one of the possible routing paths through which to route the select traffic based on the capacity of the at least one routing node in the possible routing paths to provide the processing resources (col. 6, lines 50-67).

Regarding claims 10, 28, and 40, Denecheau teaches the method, system, and computer readable medium of claims 9, 27, and 39 further comprising allocating resources of the at least one routing node along the at least one of the possible routing paths to provide the processing for the application level support while routing (col. 6, lines 66-67; col. 7, lines 1-20, 59-65).

Regarding claims 11, 29, and 41, Denecheau teaches the method, system, and computer readable medium of claims 1, 19, and 31 where the selecting step further comprises:

identifying possible routing paths between a source and a destination for the select traffic, each of the possible routing paths including at least one routing node

capable of providing the processing resources required to provide the application level support for the select traffic (col. 3, lines 43-58);

identifying capacities of a plurality of routing nodes among the possible routing paths to provide the processing resources (col. 6, lines 50-67); and

determining at least one of the possible routing paths through which to route the select traffic based on the capacity of the plurality of routing nodes in the possible routing paths to provide the processing resources (col. 6, lines 50-67).

Regarding claims 12, 30, and 42, Denecheau teaches the method, system, and computer readable medium of claims 11, 29, and 41 wherein the selecting step further comprises distributing processing among the plurality of routing nodes to provide the application level support for the select traffic (col. 6, lines 66-67; col. 7, lines 1-20, 59-65).

Regarding claims 13, 16, and 43, Denecheau teaches a method, routing element facilitating distribution, and computer readable medium for distributing processing among multiple routing devices capable of providing application level support, the method comprising:

determining processing resources necessary for the application level support of traffic to be routed (col. 3, lines 43-58);

monitoring processing capacity available on a plurality of routing nodes capable of providing the application level support and routing the traffic (col. 6, lines 50-67);

identifying at least two of the plurality of routing nodes having combined processing capacity to provide the application level support necessary for the traffic to be routed (col. 5, lines 22-51; col. 6, lines 50-67; col. 7, lines 1-20, 59-65); and

routing the traffic in a manner allowing the at least two routing nodes to provide the processing for the application level support (col. 5, lines 22-51; col. 6, lines 50-67; col. 7, lines 1-20, 59-65).

Denecheau fails to teach the limitation further including application layer support and the use of routing nodes including a control plane, a compute plane, and a forward plane.

However, AAPA teaches the use of a control plane, forward plane, and routing on an application level (pages 1-2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Denecheau in view of AAPA to use a control plane, forward plane, and routing on an application level. One would be motivated to do so because it makes use of sophisticated application-level knowledge.

Denecheau and AAPA fail to teach the limitation further including the use of routing nodes including a compute plane.

However, Nessett teaches packets that are transmitted through an intermediate device which applies compression and/or encryption (col. 2, lines 14-38).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Denecheau and AAPA in view of Nessett to include a compute plane, with functions such as compression and encryption, as part of a routing node.

One would be motivated to do so because compressed data can help preserve bandwidth (col. 1, lines 37-39).

Regarding claims 14, 17, and 44, Denecheau teaches the method, routing element, and computer readable medium of claims 13, 16, and 43 further comprising determining how to distribute the processing for the application level support among the at least two routing nodes based on the processing resources necessary for application level support (col. 5, lines 22-51; col. 6, lines 50-67; col. 7, lines 1-20, 59-65).

Regarding claims 15, 18, and 45, Denecheau teaches the method, routing element, and computer readable medium of claims 13, 16, and 43 further comprising determining how to distribute the processing for the application level support among the at least two routing nodes based on the processing resources necessary for application level support (col. 5, lines 22-51; col. 6, lines 50-67; col. 7, lines 1-20, 59-65).

Regarding claim 47, Denecheau teaches the method of claim 1 wherein the at least one routing node provides the application level support for the select traffic while routing the select traffic by manipulating a payload of a packet within the select traffic (col.5, lines 52-59, Denecheau discloses a message broken into packets, with those packets possibly being segmented, and transferred over the network).

Regarding claim 50, Denecheau teaches the method of claim 1 wherein the at least one routing node provides the application level support for the select traffic while routing the select traffic by operating on layer four and higher protocols within packets within the select traffic (AAPA).

4. Claims 48 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Denecheau, AAPA, and Nessett further in view of Chiu et al., U.S. Patent No. 6,701,363.

Denecheau teaches the invention substantially as claimed including a method for statistically improving routing within an Internet, and more particularly for improving next hop selection between internetwork routers (see abstract). Nessett teaches the invention substantially as claimed including techniques for avoiding the use of compression resources on data that has already been compressed (see abstract).

As to claims 48 and 49, Denecheau, AAPA, and Nessett teach the method of claim 1.

Denecheau, AAPA, and Nessett fail to teach the limitation further including routing the select traffic by providing secure socket layer applications and Internet Protocol security applications.

However, Chiu teaches measuring and analyzing performance characteristics for accessing hyper-link documents, such as web pages, over a communications network (see abstract). Chiu teaches the use of SSL and security protocols for routing (col. 8, lines 40-57).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Denecheau, AAPA, and Nessett in view of Chiu to route the select traffic by providing secure socket layer applications and Internet Protocol security applications. One would be motivated to do so because it would allow for more ways to route the traffic which would provide more efficient routing overall.

(10) Response to Argument

The Examiner summarizes the various points raised by the appellant and addresses replies individually.

Sections A and B of the Arguments set forth in the Appeal Brief are an introduction and summary of the references. Accordingly, there are no arguments for the examiner to respond to with respect to these sections of the Appeal Brief.

In section C of the appeal brief, appellant sets forth what he considers to be the legal standards for establishing obviousness.

In view of, KSR International Co. v. Teleflex Inc. et al., the Examiner does not agree that the appellant has set forth the current legal standards for establishing obviousness.

With regards to section D-1 of the appeal brief, the appellant argues that the combination of Denecheau, AAPA, and Nessett is improper because the Patent Office has not supported the stated motivation to combine Denecheau, AAPA, and Nessett with actual evidence.

In response, the examiner respectfully disagrees:

In addition, the knowledge to combine is generally available to one of ordinary skill in the art as evidenced by the background of the appellant's specification. Page 1, line 20 – page 3, lines 5 explain why it would be useful to include application layer support during routing.

With regards to section D-2 of the appeal brief, the appellant argues that the combination of Denecheau, AAPA, and Nessett is improper because the combination would render Denecheau unsuitable for its intended purpose.

In response, the examiner respectfully disagrees:

The Appellant contends that modifying Denecheau to include application level processing may contradict the next hop identified by Denecheau's method; however, they offer no explanation as to why this may contradict. The Examiner sees no reason as to why that would happen. The inclusion of application level support as taught by both AAPA and Nessett provides additional functionality to Denecheau without rendering Denecheau unsuitable for its intended purpose.

In response to the Applicant's argument that the Examiner's argument is faulty for relying on certain portions of Denecheau and not the reference as a whole, thus allowing for a combination of the references, the Appellant seems to be misunderstanding the rejection. The Examiner looks at the teachings of a reference as a whole, while relying on a portion of the reference that does not teach away from the claimed invention.

With regards to section D-3 of the appeal brief, the appellant argues that the combination of Denecheau, AAPA, and Nessett does not render claims 1-47 and 50 obvious because the combination does not teach the claimed compute plane.

In response, the examiner respectfully disagrees:

It appears that the Appellant does not understand the Examiner's position regarding this matter. The specification defines a compute plane on page 13, lines 21-30, specifically that "the compute plane is capable of implementing virtually any type of application, ranging from carrying out mathematical operations on payloads to implementing compression and encryption algorithms." Nessett teaches, on column 2, lines 14-38, packets that are transmitted through an intermediate device, which applies compression and/or encryption. Nessett teaches functions of the compute plane as defined by the specification, therefore it is has the compute plane used in the claimed limitations.

In response to the Applicant's arguments that the references do not teach configuring the routing nodes to include a control plane, compute plane, and a forward plane, the Examiner would like to point out that it is inherent that hardware devices need to be configured to be used.

The Appellant argues that there is a structural difference between Nessett and the claim. The Appellant never points out what that difference is and they refer to MPEP 2114, which applies to an apparatus claim, which this is not, making the argument moot.

In response to the Applicant's arguments that there is no motivation to combine Nessett with the other references, the motivation is that compressed data can help preserve bandwidth. This is found on column 1, lines 37-39, of Nessett and was in the previous rejection.

With regards to section E-1 of the appeal brief, the appellant argues that claims 48 and 49 are non-obvious because the combination of Denecheau, the AAPA, Nessett, and Chiu does not teach the claimed compute plane.

In response, the examiner respectfully disagrees:

It appears that the Appellant does not understand the Examiner's position regarding this matter. The specification defines a compute plane on page 13, lines 21-30, specifically that "the compute plane is capable of implementing virtually any type of application, ranging from carrying out mathematical operations on payloads to implementing compression and encryption algorithms." Nessett teaches, on column 2, lines 14-38, packets that are transmitted through an intermediate device, which applies compression and/or encryption. Nessett teaches functions of the compute plane as defined by the specification, therefore it is has the compute plane used in the claimed limitations. One would be motivated to combine the references because compressed data can help preserve bandwidth. This is found on column 1, lines 37-39, of Nessett and was in the previous rejection.

With regards to section E-2 of the appeal brief, the appellant argues that claims 48 and 49 are non-obvious because the combination of Denecheau, the AAPA, Nessett, and Chiu is improper.

In response, the examiner respectfully disagrees:

The motivation to combine is that Chiu would allow for more ways to route the traffic, which would provide more efficient routing overall. Chiu teaches the use of SSL and various security protocols for routing, allowing for more packets to be routed in different ways, thus making for more efficient routing.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Avi Gold

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SUPERVISORY PATENT EXAMINER

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